Klamath Network Featured Creature
October 2008

Lupine
(Lupinus species)

FIELD NOTES:

General Description:
The U.S. is home to ~156 lupine species, with 200-500 species total in the world. Lupines are part of the pea (Fabaceae) family and are mostly herbacious perennial plants. However, some are annuals averaging 1-5 ft tall and yet others are shrubs growing up to 10 ft tall! Color varies among species and, even within a species, color may vary (for example, from blue to lavender to purple) due to differences in soil micronutrients. The soft grey-green leaves have silver hairs and an easily distinguishable shape, palmately separated (like fingers on the palm of a hand) into 5-28 leaflets. The flowers resemble others in the pea family, with an upper "standard," two lateral wing-like parts, and a lower section of two petals fused into a "keel." Most of the roots have nodes of *Bradyrhizobium* soil bacteria, helping to fix nitrogen in a beneficial relationship for both the lupine and the bacteria.

Reproduction:
Lupines are pollinated by bees. Some species (e.g., *Lupinus bicolor*) have flowers that signal to bees whether or not each has already been pollinated. Before pollination, the top petals are white and the rest are purple. Once pollinated, the white petals turn pink. It is still a mystery why lupines use this color signal, but scientists believe the post-pollination color combination is less attractive to bees than the pre-pollination colors, ensuring more flowers are pollinated. Lupines produce large, tough seeds housed in pods similar to peas. The pods break open upon maturity, releasing the seeds. In one study, some lupine seeds germinated after being frozen in a Canadian silt deposit for at least 10,000 years!

Where to see it in the Klamath Parks:
Everywhere! All parks in the Klamath Network have lupine species, and some even have multiple species.


Lupine in the Bald Hills of Redwood


Wikipedia

Status:
The status varies for the hundreds of *Lupinus* species, from endangered to stable to invasive.

Habitat:
"Lupine," derived from the Latin for "wolf," shows how people once thought these plants "devoured" the soil's nutrients. We now know this statement is incorrect and that lupines actually have an affinity for poor soil types and *add* nutrients to these soils. They are one of the few plants that can colonize these soils, fixing atmospheric nitrogen into needed nutrients and actually fertilizing the soil, improving it for other species. They are considered pioneer or early successional species, often colonizing disturbed and other nutrient-poor areas.

Distribution:
North and South America, the Mediterranean, and Africa are all home to lupine species. Major areas for lupine diversity are in South America, and here in western North America.

Interesting Facts:
People have used lupines in a variety of ways for thousands of years. Lupines' nutrient-rich bodies make excellent manure for agricultural fields. Although some lupine species or their parts are poisonous, others have edible seeds called lupin beans. Soaked in brine, these beans have been part of Mediterranean cuisine for a long time. Sweet lupine has also been used in many dishes and as a vegan protein supplement. However, as some people have severe lupine allergies, it has not gained much popularity as a versatile ingredient.